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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/442,871	11/18/1999	NICHOLAS A. DOUDOUMPOULOS	08305/054001	6493

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EXAMINER

LUU, THANH X

ART UNIT PAPER NUMBER

2878

DATE MAILED: 07/24/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	09/442,871	DOUDOU MOPOULOS, NICHOLAS A.	
	Examiner	Art Unit	
	Thanh X Luu	2878	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 December 2001.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 13 December 2001 is: a) ☐ approved b) ☒ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

### DETAILED ACTION

This Office Action is in response to amendments and remarks filed December 13, 2001. Claims 1-20 are currently pending.

#### *Drawings*

1. The proposed drawing correction filed on December 13, 2001 has been disapproved because it is not in the form of a pen-and-ink sketch showing changes in red ink or with the changes otherwise highlighted. See MPEP § 608.02(v). Furthermore, Examiner has found no differences between the proposed drawings that were submitted and the original drawings.
2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: Reference number 210 is missing from Figure 2 and reference number 299 is missing from Figure 3. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: Reference signs A-I and the symbols for the array center and the package center. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Art Unit: 2878

4. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the electrical connections on the photosensitive element must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

#### ***Claim Objections***

5. Claim 3 and 4 are objected to because of the following informalities:

In claim 3, "said plastic package" lacks proper antecedent basis. Examiner recommends using consistent terminology.

In claim 4, "said connection" lacks proper antecedent basis.

Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 6, 11, 14 and 18 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Art Unit: 2878

Regarding claims 6 and 11, there is insufficient support for an embodiment in which there are connections on all edges of a perimeter of an image sensor, wherein the image sensor comprises two image sensors. At least from Figure 3, it shows leads coming from only one edge.

Regarding claims 14 and 18, there is insufficient support for an embodiment in which there is a mounting part, mounting the package such that the edge is coupled to an object of mounting. Further, there is insufficient support for a reference line on an object of mounting.

In response, Applicant should cite to specific sections of the specification in which such an embodiment is supported, otherwise, Examiner reminds Applicant that no new matter may be added.

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 14, 19 and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 14, it is unclear in its given context how a mounting part acts to mount the package such that the edge is coupled to an object of mounting. Further, it is unclear how the object of mounting is functionally related to the mounting part.

Regarding claims 19 and 20, it is unclear in its given context where the image information comes from. That is, no light from an image is claimed to be incident on the surfaces. It is also unclear in its given context if the first and second image sensors

Art Unit: 2878

form the actual first and second image acquiring surfaces or not. That is, image information is usually obtained from image sensors not surfaces.

***Claim Rejections - 35 USC § 102***

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

11. Claims 1, 4, 5, 7, 8, 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Shibata et al. (U.S. Patent 4,827,118).

Regarding claims 1, 4, 5, 7, 8 and 10, Shibata et al. disclose (see Figures 1, 2 and 16) a packaged photosensitive element and method, comprising: a photosensitive element (10) having electrical connections (50); and a clear plastic package (20), having the photosensitive element mounted therein, and providing an edge perimeter having electrical connections (33) along all edges of the edge perimeter, which connections are connected to the electrical connections on the photosensitive element, and the clear

Art Unit: 2878

plastic package being clear at all locations within the perimeter. Shibata et al. further disclose (see Figure 1) the package is in the shape of a quad flat pack. The photosensitive element inherently accumulates charge using a photogate. Shibata et al. further disclose (see Figures 19 and 20) operating the image sensor to receive light that passes through the clear plastic package. Light from any incoming angle may impinge on the image sensor.

12. Claims 12-14 and 16-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Kobachi et al. (U.S. Patent 5,811,797).

Regarding claims 12-14 and 16-18, Kobachi et al. disclose (see Figure 8A) an image sensor and method, comprising: first (112A) and second (112D) image sensors; and a clear plastic package (119) for the first and second image sensors, the clear plastic package packaging the image sensors with the first image sensor acquiring light from a first side (left side) of the clear plastic package, and the second image sensor acquiring light from a second, opposite side (right side) of the clear plastic package. Kobachi et al. further disclose (see Figure 8A) a perimeter surrounding the first and second image sensors, and an edge (left edge) of the perimeter including electrical connections (115) to the first and second image sensors. The image sensors inherently accumulate charge using a photogates. The package is inherently mounted to support circuitry. Kobachi et al. further disclose (see Figure 8A) the first and second sides separated by an inherent reference line.



***Claim Rejections - 35 USC § 103***

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claims 2, 3 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shibata et al.

Regarding claim 2, Shibata et al. disclose (see column 12, line 50) using a CCD or a MOS image sensor. Shibata et al. do not specifically disclose a CMOS active pixel sensor. However, it is well known in the art that CCDs and MOS image sensors are equivalent to CMOS active pixel sensors. Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide such an image sensor in the apparatus of Shibata et al. as desired.

Regarding claims 3 and 9, Shibata et al. disclose the package is a transparent resin. Shibata et al. do not specifically disclose the clear plastic package is acrylic. However, the particular type of material is a matter of design choice and acrylic is a well known transparent resin. It would have been obvious to a person of ordinary skill in the art at the time the invention was made use acrylic in the apparatus and method of Shibata et al. to provide a more durable package as desired.

15. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kobachi et al.

Regarding claim 15, Kobachi et al. disclose (see Figure 8A) light receiving elements (112A and 112D). Kobachi et al. do not specifically disclose CMOS active pixel sensors. However, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use CMOS active pixel sensors in the apparatus of Kobachi et al. to provide more resolution and improve detection.

16. Claims 19 and 20, as understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Asano et al. (U.S. Patent 4,329,577).

Regarding claims 19 and 20, Asano et al. disclose (see Figure 12A) an image sensor, comprising: an image sensor, obtaining image information from a first image acquiring surface (15) and from a second opposite image acquiring surface (15'). Asano et al. further disclose (see Figure 12A) the image sensor includes a first and second image sensors facing in opposite directions. Asano et al. do not specifically disclose a clear rectangular package. However, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to enclose the image sensor of Asano et al. in a clear rectangular package to protect and image sensor from damage and thereby improve detection.

17. Claims 6 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shibata et al. in view of Kobachi et al.

Regarding claims 6 and 11, Shibata et al. disclose the claimed invention as set forth above. Shibata et al. do not specifically disclose a second image sensor or photosensitive element for receiving incoming light from a different direction. Kobachi et al. disclose (see Figure 8A) two image sensors or photosensitive elements for receiving

light from different directions. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to include a second image sensor or photosensitive element in the apparatus and method of Shibata et al. in view of Kobachi et al. to obtain better detection through more sensors.

***Response to Arguments***

18. Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

19. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanh X. Luu whose telephone number is (703) 305-


Art Unit: 2878

0539. The examiner can normally be reached on Monday-Friday from 6:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font, can be reached on (703) 308-4881. The fax phone number for the organization where the application or proceeding is assigned is (703) 308-7722.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

txl  
July 17, 2002

  
Que T. Le  
Primary Examiner